CLINICAL NOTES AND CASE REPORTS

AN APPARATUS FOR APPLICATION OF HEAT IN THE TREATMENT OF GONORRHEA IN THE FEMALE

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IN the past few years the prolonged application of heat has become one of the most important features in treating gonorrhea. A number of complicated devices (1, 2, 3) are being used for this purpose.

The accompanying illustrations show a very simple and inexpensive method of applying prolonged heat, with the added advantage of drainage. There are two pieces of apparatus—one for the office, and the other for home use.

In the office treatment the patient is placed on the table in the lithotomy position and on a level with the lavatory (Fig. 1). The irrigator is inserted into the vagina and is held firmly against the vulva by the patient, so that there is very little spill. The cold water is then turned on gently until a very small stream comes from the outlet. The hot water is turned on slowly, gradually increasing the temperature until it is as hot as the patient can stand. The rise in temperature is noted on the thermometer in the flask and is the guide for adjusting the flow so that the temperature can be kept at a fixed point. The patient soon learns to tolerate a temperature of from 118 to 120 degrees Fahrenheit over a period of twenty-five to thirty minutes. By this method heat is applied directly to the cervix and vagina with constant irrigation.

When the patient has become accustomed to the office treatment she is instructed in the use of the simplified apparatus for home treatment, as shown in Figure 2. She is instructed to lie in the bathtub with the thighs against the abdomen and the heels on rail of tub, with the hips elevated. This balloons out the vagina by putting it in a perpendicular position and allowing air to enter. The tip is inserted into the posterior cul-de-sac. The patient, having experience in the office, is instructed to begin the home treatment with a small stream of cold water, just enough to cause an overflow from the vagina, then to increase the temperature gradually with the hot water, thus having a continuous irrigation without force and applying direct heat to all parts of the vagina. These treatments are taken at home for fifteen minutes twice a day, or as indicated.

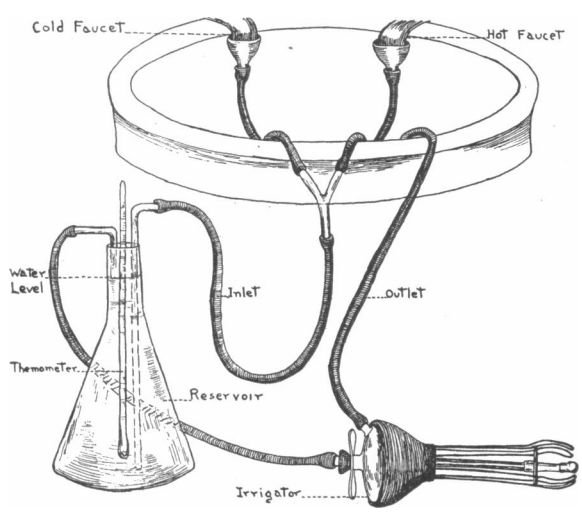

Fig. 1.—Apparatus for office treatment.

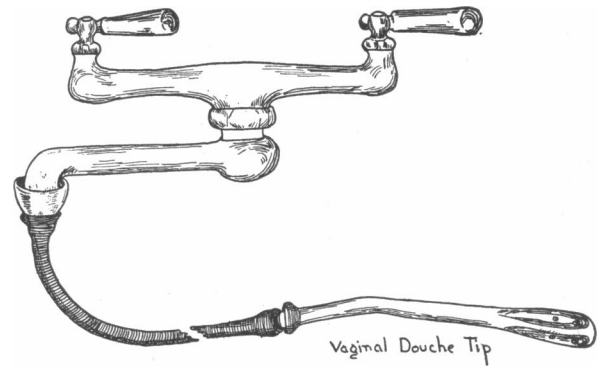

Fig. 2.—Simplified apparatus for home treatment.

Due to the direct connection, with no mixing chamber or thermometer for a guide, the patient is warned of the possible danger of a too sudden rise in temperature and is cautioned to be careful and increase the temperature very gradually.

This type of treatment supersedes (1) the use of tampons which are obnoxious and interfere with drainage, (2) the one or two-quart douches which do not provide enough heat or drainage, and (3) the old Sitz baths, which are weakening and depressing. In comparison, the patients favor the prolonged irrigations with heat.

COMMENT

The ideal treatment of gonorrhea today is based upon:

1. The application of heat, with drainage.
2. Elimination of foci of infection in the cervix and in Skene's and Bartholin's glands by either cauterization with actual cautery or endothermy or removal by surgery.
3. Prevention of reinfection.

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RELAPSING FEVER

REPORT OF CASE

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MEADER [1] in 1915 reported the first cases of true relapsing fever arising from a focus in this country. Two years later Waring [2] reported a case in a twelve-year-old boy from the same focus at Bear Creek, Colorado. Briggs [3] in 1921 reported the first proven cases occurring in California, although there had been an epidemic among the Chinese population of Oroville in 1874. These cases are somewhat doubtful, however,

since an absolute diagnosis was impossible at that time. Weller and Graham [4] in 1930 definitely proved the transmitting vector to be a tick in their patients from Texas. So far they are the only ones to prove the transmitting agent in the cases occurring endemically in this country.

Since Waring's patient is the youngest recorded in the literature, a case occurring in a young child, arising from a focus in Southern California, seems important enough to warrant reporting.

REPORT OF CASE

J. B., male, five and one-half years old. The family history is significant in that the father has arrested pulmonary tuberculosis, which has been active during the life of the patient although due precautions were taken. The father also has hay fever.

For six months, during the winter, the family lives in Tucson, Arizona. The other half of the year is spent in Big Bear Valley, California. With the exception of an occasional "upset stomach," associated with fever as high as 102 degrees, lasting for a day, the past history is irrelevant.

Shortly after the patient's arrival in Big Bear Valley this summer, he experienced one of these attacks of "upset stomach." The boy recovered in the usual length of time and remained well until about ten days later, when he did not act or feel quite as well as usual. Three days later he complained of pain in his left elbow joint. (He had complained of a similar pain in his ankles some months before.) The following day, June 6, his temperature was taken and found to be 102 degrees (M). He vomited once and seemed quite ill although his mother thought it was another attack of "upset stomach." At four o'clock the same afternoon, he had a generalized convulsion, temperature 103 degrees (A), and he vomited again. Following this he fell asleep. His only complaints were headache and malaise.

I was called by Dr. J. A. Wallace of Big Bear Valley, and saw the patient for the first time at nine o'clock that night. Shortly after I arrived he had a generalized, epileptiform convulsion, lasting several minutes. Temperature was 105.6 degrees (R). He had taken but little fluid, and had voided last at three o'clock on that afternoon.

Physical examination at that time revealed an extremely toxic, irrational, slightly thin boy with flushed face, dry, parched lips, obviously acutely ill. Skin was moderately dehydrated. Nose showed allergic rhinitis with some secondary infection, but not enough to account for the temperature. Mouth was dry and coated with many white pin-head sized elevations scattered throughout. The tongue had a thick gray coat. Tonsils were small and not infected. Reflexes, hyperactive and equal. Eye grounds were negative.

Lumbar puncture was done and the fluid found to be clear and under normal pressure. Three lymphocytes were found on microscopic examination. Pandy test negative.

During the night the child was very restless and at times irrational. Temperature gradually came down to 103 degrees, where it remained. Despite adequate fluid intake, the boy voided but once during the night, involuntarily, although he had frequent desire, urgency, and made several unsuccessful attempts.

Early the next morning he was taken to the Redlands Community Hospital. On the way down he had two "fainting spells."

On admittance to the hospital he still appeared somewhat toxic, but was rational and in general seemed improved. Shortly after his arrival he voluntarily voided a small amount of urine. Physical examination was the same, except for moderate abdominal distention; and the bladder was found to reach a point almost as high as the umbilicus. Blood pressure was 98/65. A nose and throat consultation confirmed the above findings in these structures.

The patient was catheterized and 150 cubic centimeters of urine were removed, bringing the bladder to a point just above the symphysis. The urine was negative except for 3-4 w. b. c./h. d. f. (8-10 w. b. c./h. d. f. uncatheterized). After a urologic consultation, it was decided to drain the bladder flat, but before this could be done the patient started voiding; and following a hypodermoclysis of 400 cubic centimeters normal saline and 300 cubic centimeters of 10 per cent glucose intravenously, he had diuresis. At three o'clock that afternoon his temperature became normal and he seemed greatly improved except for the abdominal distention, which was not relieved until that evening, despite stupes and a rectal tube.

The laboratory work completed was as follows: Blood: Red blood cells, 5,280,000; white blood cells, 16,850. Differential: Polymorphonuclears, 91 per cent; small lymphocytes, 2.5 per cent; large lymphocytes, 4.5 per cent; transitionals, 2 per cent; myeloblasts, 1 per cent. No parasites seen. Blood taken while temperature was coming down—at 102 degrees. X-ray of chest was negative. N. P. N., 39 mg. per cent.

Except for looking somewhat pale and weak, he seemed well and remained afebrile until early in the morning of June 8, when the temperature went to 105 degrees, falling sharply to normal at 11 a. m. Except for headache he had no complaints. The only change noted was a greatly decreased toxicity, as compared to the first attack, and a barely palpable spleen.

Malaria was considered, although the chance of infection was slight. Blood taken with the temperature coming down (102 degrees R): White blood cells, 4,600; polymorphonuclears, 54 per cent; small lymphocytes, 30 per cent; large lymphocytes, 10 per cent; transitionals, 4.5 per cent; myeloblasts, 0.5 per cent; eosinophils, 1 per cent. Negative for parasites.

The patient again seemed over his infection and remained well until five days later, when on June 15 he started a more gradual rise in temperature. Smears were taken while the temperature was going up, and no parasites or spirochetes were seen. White blood cells in the five-day period had remained between 4,300 and 5,400, with the polynuclears and lymphocytes about equal. Smears negative except for basophylic stippling of the red cells. The eosinophils increased to 4.5 per cent. Temperature reached a peak of 104.5 degrees. The white count increased to 8,850, with 67 per cent polymorphonuclears. The hemoglobin was found to be 71 per cent (N) where formerly it had been 80 per cent. The basophilic stippling showed a definite increase. The spleen, which had remained the same size, increased in size with this attack so that it could be felt one finger below the costal margin. The edge was round and soft.

Additional laboratory work was done as follows: Serum agglutination negative for *Bacillus melitensis, Bacillus abortus,* typhoid, and paratyphoids A and B. Cultures were made from the urine, stool, and blood, but were all negative. Urine negative except for an occasional trace of albumen and an occasional w. b. c. The stool was negative. Tuberculin 0.1 milligram intradermally, human and bovine, were both negative.

Because of the patient's well-being between attacks, the gradual decrease in severity of the symptoms with each subsequent attack, and finding the disease occurred in Southern California, we were led to consider relapsing fever, in spite of the fact that no spirochetes had been found in smears taken with the temperature going up. The following day, June 16, while the patient was afebrile, one spirochete was found in a routine smear. I was unable to demonstrate it to Dr. A. H. Zeiler for confirmation, however.

Subsequently the blood picture became normal except for a slight anemia. The boy's general condition improved more than it had between previous attacks, and his spleen became barely palpable, so that it appeared as if the disease had run its course.

Four days later, however, on June 19, his temperature started going up late in the afternoon and reached a peak of 104.2 degrees at midnight. He again complained of headache, and his spleen enlarged to where it could be felt two fingers below the costal margin. Spirochetes of relapsing fever, *Borrelia recurrentis,* presumably the North American type *B. novyi,* were found in both fresh and fixed smears taken while the

temperature was going up. All of the previous smears have been carefully restudied and no spirochetes could be found.

The following morning, as the temperature was coming down, 0.15 gram of neoarsphenamin was given intravenously. Twenty-four hours later he had a mild reaction, with fever of 102.8 degrees and headache. The spleen remained unchanged, and no spirochetes were found.

We planned to repeat the drug in four days, and at the appointed time, June 24, his temperature started going up, which gave the exact opportunity we wanted for treatment. He complained of headache, his spleen which had decreased in size became larger, and, interestingly enough, a spirochete was found by accident in a routine smear. The same dose of neoarsphenamin was given and repeated three days later. The course was uneventful following the second injection, and the spleen could not be felt two days later, June 26.

COMMENT

Briefly the interesting points in this case are as follows: leukopenia (with the exception of two of the counts given above, other counts too numerous to include) where textbooks give leukocytosis. Absence of muscle pain, usually an outstanding symptom of the disease. The absence of spirochetes during the febrile stage and the presence of them on smear during an afebrile period, which is relatively common in children.[5] The attacks were much shorter, twelve hours and less (except in the first one) than the usual two to seven days' duration. Finally the toxic symptoms, abdominal distention and the suppression of urine, two of the most severe toxic symptoms[6] of the disease.

I am indebted to Dr. A. H. Zeiler of Los Angeles for confirmation of the diagnosis and advice in treatment.

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THERAPEUTIC FEVER IN THE TREATMENT OF CHOREA

REPORT OF CASE

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CHOREA may be grouped with certain other childhood diseases, as a rheumatic infection. In this group, Smith and Sutton[1] include acute rheumatic polyarthritis, chorea, carditis, recurrent sore throat or tonsillitis, subcutaneous nodules, growing pains, and certain skin lesions. These are called rheumatic infections because they exhibit a tendency for the heart to become involved sooner or later.

The child with chorea presents a well known picture. There are constant purposeless movements of the extremities. The face is often expressionless. The child grimaces and has difficulty in speech. Voluntary movements are impossible.

The pathology of chorea is not definitely known. In those few cases examined at autopsy, hyperemia—with thromboses in the engorged vessels—has been observed. There are round celled infiltrations about the smaller vessels. These changes are of similar nature to the vascular changes in acute rheumatic fever.

The traditional treatment of chorea by rest and sedatives has not been satisfactory. Lately there has been renewed interest in the treatment of this disease, since it was found by Lucy Porter Sutton that it responded to artificially produced fever.

We have recently had occasion to use this form of therapy in a patient seen at the Fresno General Hospital.

REPORT OF CASE

The patient was an Armenian girl of nine years of age. One month previous to admission she had gone to bed with an attack of acute rheumatic polyarthritis. Within two weeks she began to be irritable and fidgety. This had gradually become more noticeable until on admission she presented well developed choreiform movements.

The early history was unimportant, and the child had been in good health up to the onset of the acute rheumatic fever.

The patient was a well developed girl of nine years, weighing sixty pounds. The temperature was normal, and the pulse rate was 120. There was a soft systolic murmur at the apex transmitted toward the left axilla. The tonsils were slightly enlarged.

She was given warm baths, moderate doses of luminal and bromids, but without any improvement in her condition. In spite of her cardiac lesion it was decided to try fever therapy.

On July 6 one minim (0.06 cubic centimeter) of Cutter's typhoid vaccine (500 million killed bacteria to each cubic centimeter) was given intravenously. The temperature rose from 98 degrees Fahrenheit (36.6 centigrade) to 102 Fahrenheit (38.8 centigrade) in five hours.

On July 7 two minims (0.12 cubic centimeter) of vaccine were injected. The temperature rose in five hours from 99.4 degrees Fahrenheit (37.5 centigrade) to 107 Fahrenheit (41.6 centigrade). An ice cap was applied to the head and a cool sponge bath was given. Next morning the temperature was normal.

On July 8 one and one-half minims (0.09 cubic centimeter) were given, which was followed by a rise of temperature from 98.6 degrees Fahrenheit (37.0 centigrade) to 104 Fahrenheit (40.0 centigrade) in five hours. There was considerable improvement in the child's appearance by this time. The purposeless movements had decreased, but were not entirely abolished.

On July 17 two and one-half minims (0.15 cubic centimeter) vaccine were given. This was followed by a rise of temperature to 101 degrees Fahrenheit (38.3 centigrade).

On July 24 the last injection of three minims (0.18 cubic centimeter) were given, which was followed by a rise of temperature to only 99 degrees Fahrenheit (37.2 centigrade).

The choreiform movements had ceased and there was no more irritability.

Improvement in the general physical and mental condition of the patient has continued to date, with no return of symptoms. Since leaving the hospital she has gained one and one-half pounds in three weeks. The pulse has dropped to ninety.